

GP-300848

## VISUALIZATION OF COMPLEX SYSTEM INTERACTIONS

## ABSTRACT OF THE DISCLOSURE

- A data analysis tool that provides a technique for visualizing changes of a system model. The analysis tool includes constructing an influence diagram consisting of a series of calculation entities and data entities interconnected by arrows, where the entities correspond to parameters of a system model being analyzed. Input values are assigned to each of the data entities for a particular scenario, and the corresponding values are computed for the calculation entities. A new scenario is implemented by changing one or more of the input values to the data entities, thus providing different results for some or all of the calculation entities. A mathematical function is applied to each entity to modify its appearance based on the values of the entities for current or other scenarios. Changes to each entity from the input of the new scenario can be in a variety of forms, such as size of the entity, color of the entity, shading of the entity, etc.
- Additionally, the arrows that connect the various entities can also be modified in appearance based on the new values of the entities for the new scenario. A rapid replay of the sequence of diagrams so generated provides a useful visual animating of system response to changing inputs and assists in controlling and improving the system under study.